



# OWNER'S MANUAL

## PH-302 MkII

Vacuum Tube Phono Preamplifier

NOTE: Before installing your new component, please read this manual carefully as it will inform you of the product specifications, proper installation and correct operating procedures for your unit. Also included in this manual are guidelines on how to service and care for your new Cary Audio Design product.

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# IMPORTANT SAFETY INSTRUCTIONS

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**WARNING:** To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture. The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of un-insulated dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



**CAUTION:** To reduce the risk of electric shock, do not remove the cover. There are no user serviceable parts inside. Please refer to qualified personnel for service.

**ALERT:** The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the component.

1. **READ ALL INSTRUCTIONS:** All the safety and operating instructions of your Cary Audio equipment should be read before power is applied to the equipment.
2. **RETAIN OWNER'S MANUAL:** These safety and operating instructions should be retained for future reference.
3. **HEED WARNING:** All warnings on the unit and in the operating instructions should be adhered to.
4. **FOLLOW INSTRUCTIONS:** All operating and use instructions should be followed.
5. **CLEANING:** Unplug the unit from the wall outlet before cleaning. The unit should be cleaned only as recommended by the manufacturer.
6. **ATTACHMENTS:** Do not use attachments not recommended by the unit manufacturer as they may cause hazards.
7. **WATER AND MOISTURE:** Do not use the unit near water - for example, near a bath tub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool.
8. **ACCESSORIES:** Do not place the unit on an unstable cart, stand, tripod, bracket, or table. The unit may fall, causing serious injury to a child, an adult, or damage to the unit. Mounting of the unit should follow the manufacturer's instructions and should use a mounting accessory recommended by the manufacturer.
9. **VENTILATION:** Slots and openings in the cabinet are provided for ventilation to ensure reliable operation of the unit and to protect it from overheating. These openings must not be blocked or covered. The top or bottom panel openings should never be blocked by placing the unit on a bed, sofa, rug, or other similar surface. The unit should not be installed in a built-in location such as a bookcase or rack unless proper ventilation is provided. There should be free space of at least 6 inches (16cm) above the unit and an opening behind the unit.
10. **GROUNDING OR POLARIZATION:** The unit may be equipped with a polarized alternating current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you cannot insert the plug fully into the outlet, try reversing the plug. If the plug should fail to fit, contact a licensed electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
11. **POWER SOURCES:** The unit should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supplied to your home, consult your unit dealer or local power company.
12. **POWER CORD PROTECTION:** Power supply cords should be routed so that they are unlikely to be walked on or pinched by items placed on or against them. Pay close attention to cords where they enter a plug, or a convenience receptacle, and the point where they exit from the unit.
13. **OUTDOOR ANTENNA GROUNDING:** If an outside antenna or cable system is connected to the unit, be sure the antenna or cable system is grounded so as to provide protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, NSI/NFPA 70, provides information regarding proper grounding of the mast and supporting structure, grounding of the lead-in wire to an Antenna-discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

# IMPORTANT SAFETY INSTRUCTIONS

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14. **LIGHTNING:** For added protection for the unit during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the unit due to lightning and power line surges.
15. **POWER LINES:** An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, take extreme care to keep from touching such power lines or circuits as contact with them might be fatal.
16. **OVERLOADING:** Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.
17. **OBJECT AND LIQUID ENTRY:** Never push objects of any kind into the unit through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the unit.
18. **SERVICING:** Do not attempt to service the unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
19. **REPLACEMENT PARTS:** When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.
20. **SAFETY CHECK:** Upon completion of any service or repairs to the unit, ask the service technician to perform safety checks to determine that the unit is in proper operating condition.
21. **WALL OR CEILING MOUNTING:** The unit should be mounted to a wall or ceiling only as recommended by the manufacturer.
22. **HEAT:** The unit should be situated away from heat sources such as radiators, heat registers, stoves, or other units (including amplifiers) that produce heat.
23. **IMPORTANT SAFETY NOTE:** Before connecting a new component such as the DVD 7 to your audio or home theater system it is always good practice to make certain that all components are turned off, and preferably unplugged from their AC power source. Many modern electronics products feature automatic turn-on circuits that may be activated during an installation, causing the potential for damage to electronic components and/or speakers. Such damage is not covered by product warranties and Cary Audio specifically disclaims responsibility for any such damage.

**Power Cord:** The removable power cord that is shipped with the player is specifically designed to be used with this product. Other AC cords may be used, so consult your dealer for advice on AC power cords and high quality wire in your system.



**AC Fuse:** The fuse is located inside the chassis and is not user serviceable. If power does not come on, contact your authorized service representative.

**Wiring:** Cables that run inside of walls should have the appropriate markings to indicate compliance with, and listing by the UL, CSA or other standards required by the UL, CSA, NEC or your local building code. Questions about cables inside of walls should be referred to a qualified custom installer, or a licensed electrician or low-voltage contractor.

**Do Not Open the Cabinet:** There are no user serviceable components inside this product. Opening the cabinet may present a shock hazard, and any modification to the product will void your warranty. If water or any metal object, such as a paper clip, coin, or staple accidentally falls inside the unit, disconnect it from the AC power source immediately and contact Cary Audio for further instructions.

24. **RECORDING COPYRIGHT:** Recording of copyrighted material for other than personal use is illegal without permission of the copyright holder.
25. **NOTE TO CATV SYSTEM INSTALLER:** This reminder is provided to call the CATV system installer's attention to article 820-40 of the NEC, ANSI/NFPA 70, which provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

# IMPORTANT SAFETY INSTRUCTIONS

## 26. FCC INFORMATION FOR USER:

**CAUTION:** ANY changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.



**NOTE:** This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules.

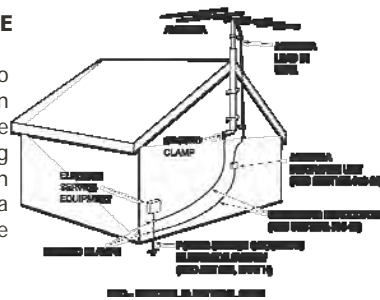
These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from where the receiver is connected.

## 27. OUTDOOR ANTENNA INSTALLATION/SAFE ANTENNA AND CABLE CONNECTION:

If an outside antenna or cable system is connected to the equipment, be sure the antenna or cable system is grounded so as to provide protection against built up static charges and voltage surges, Section 810 of the national Electrical Code, ANSI/NFP A70 (in Canada, part 1 of the Canadian Electrical Code) provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes and requirements for the grounding electrode.



### Keep Antenna Clear of High Voltage Power Lines or Circuits

An outside antenna system should be located well away from power lines, electric light or power circuits and where it will never come into contact with these power sources if it should happen to fall. When installing an outside antenna, extreme care should be taken to avoid touching power lines, circuits or other power sources as this could be fatal. Because of the hazards involved, antenna installation should be left to a professional.

# INTRODUCTION

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It took over three years of painstaking research, engineering, listening, and refining, before Cary was ready to release the PH 302. But now that it's here, even the most demanding record enthusiasts will realize this exotic unit is dedicated to nothing short of incomparable vinyl playback.

The PH 302 is a vacuum tube design utilizing four 6SL7 dual triodes. The RIAA equalization curve is derived from a passive RC circuit located between the two gain stages. The PH 302 is supplied with a regulated power supply to ensure an extremely quiet operation. The MC section uses two very high quality step-up transformers. They provide enough gain for use with any MC cartridge and with an extremely low noise floor. It is perfectly matched to any of the high-end Cary integrated amplifiers or pre-amplifiers.

The PH 302 is finished with the beauty and detail that Cary Audio Design is famous for. With its black chassis and black anodized front plate, you know immediately it belongs in the Cary family of high-end audio products.

For the analog lover the PH 302 is a magical blend of art and technology that will add to your music listening enjoyment hour after hour. Experience the PH 302, experience what vacuum tubes can do to low output moving coil playback. We believe it will change the way you listen to music forever.

When the following cautionary terms are used in this manual, these definitions apply:

**WARNING**

- **Electrical hazard! Misuse or failure to follow instructions properly may result in personal injury or death!**

**CAUTION**

- **No risk or personal injury; however, misuse or failure to follow instructions may result in damage to equipment.**

**NOTE**

- **No risk of personal injury or equipment damage; however, misuse or failure to follow instructions may prevent proper performance of the equipment.**

# SPECIFICATIONS

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This section describes the basic specifications of the PH 302 phono preamplifier at the time of printing. Specifications are subject to change without notice or obligation.

<b>CIRCUIT TYPE</b>	Direct Coupled, Single-ended Class A
<b>GAIN, MM PHONO SECTION</b>	38 dB, using triode vacuum tubes
<b>GAIN, MC PHONO SECTION</b>	54 dB, using input transformers and triode vacuum tubes
<b>NOISE AND HUM</b>	-78 dB below full output
<b>INPUT IMPEDANCE</b>	MM 47 k ohm, MC 100 ohm
<b>OUTPUT IMPEDANCE</b>	660 ohms
<b>FREQUENCY RESPONSE</b>	RIAA Curve + 0.5 dB, passive RIAA circuit design
<b>POWER SUPPLY DESIGN</b>	Fully regulated power supply with 1 ea - R-Core transformer
<b>TRANSFORMER(S)</b>	200% Duty rating for long life and reserve energy
<b>VACUUM TUBE COMPLEMENT</b>	2 ea - 6SL7 Head Amp 2 ea - 6SL7 RIAA EQ & Amp Gain Stage 1 ea - 5AR4 Vacuum Tube Rectifier
<b>POWER SUPPLY CAPACITORS</b>	6 ea - 47 $\mu$ Fd @ 350 VDC capacitor
<b>RESISTORS</b>	1% Metal Film
<b>POWER SUPPLY CAPACITORS</b>	6 ea - 47 $\mu$ Fd @ 350 VDC capacitors
<b>AC CORD</b>	3 Conductor, Detachable
<b>AC POWER REQUIREMENTS</b>	100, 117 or 234 Volts @ 50/60 Hz, set by market
<b>POWER CONSUMPTION</b>	15 Watts
<b>WARM-UP TIME</b>	5 Minutes
<b>BREAK-IN TIME</b>	100 hours of music playing time
<b>FINISH</b>	Black or silver anodized aluminum faceplate, semi gloss black steel chassis
<b>WEIGHT</b>	22 lbs. (10 kg.)
<b>DIMENSIONS</b>	4" H x 17" W x 13" D (~10 x 43 x 33 cm)

# FEATURES

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## Front Panel

<b>POWER SWITCH</b>	On/off toggle switch
<b>MM/MC SWITCH</b>	Toggle to change from mm to mc
<b>MUTE/OPERATE SWITCH</b>	Mutes output of preamplifier
<b>POWER LED</b>	Indicates AC power ON
<b>OPERATE LED</b>	Indicates ready for operation
<b>MUTE LED</b>	Indicates mute mode

## Rear Apron Features

<b>MM</b>	RCA jack for MM cartridges - input
<b>MC</b>	RCA jack for MC cartridges - input
<b>OUTPUT</b>	RCA Jack for output to preamplifier or integrated amplifier
<b>GROUND</b>	Turntable ground
<b>GROUND "FLOAT" SWITCH</b>	Floats AC ground
<b>AC FUSE</b>	1 amp slow blow protection fuse
<b>AC INLET</b>	3 conductor, Detachable



# INSTALLATION

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This section describes the unpacking and installation procedures for your new component.

## Unpacking

All Cary Audio Design shipping containers have been specially designed to protect their contents and special care has been taken to prevent damage under normal shipping conditions. Mishandling should be evident upon inspection of the shipping container. If shipping damage is found after visual inspection, take care not to destroy the evidence. If necessary, document the damage with photographs and contact the transport carrier immediately.

Carefully remove your new component from its packing carton and examine it closely for signs of shipping damage. We strongly recommend saving all original packing cartons to protect your component from damage should you wish to store it or ship it for after-sales service.

## Warranty Card

**IN THE USA:** If you are the original purchaser of a new unit from an AUTHORIZED CARY AUDIO DESIGN DEALER, please fill out the enclosed warranty registration card and return it to Cary Audio Design within 15 days of your purchase. Cary Audio Design also suggests that you keep your original packing cartons in case you ever need to ship the unit when moving to a new home. Warranty restrictions apply. Consult the warranty section at the end of this manual for details. Please be certain to keep a copy of the original sales receipt from your AUTHORIZED CARY AUDIO DESIGN DEALER to validate the warranty if ever needed. The warranty is for the original purchaser only and does not transfer to any subsequent owner.

**OUTSIDE THE USA:** Your local Authorized Cary Audio Design Distributor will make his own warranty policy for your country. Please check with them for the terms of warranty for your new amplifier.

## Break-In Period

The tubes and capacitors take approximately 100 hours of music playing to fully settle in for peak performance. The PH 302 will seem sterile or thin sounding right out of the box. After the first couple of hours you will notice increased depth and tighter bass. This break-in period defies all engineering theory, but is true with most audio amplifiers.

### **WARNING**

- **Make sure the PH 302 is unplugged from power pack before servicing.**

## SERVICE AND CARE

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The chassis may be cleaned with a soft towel and Windex® (or a similar window cleaner). Spray it on the cleaning cloth to moisten it, not on the component. Do not use solvents or harsh chemicals as they may remove the labels from the chassis. The frequency and need of cleaning will be governed by operating environmental conditions. Avoid letting the component become dusty or wet. A 'feather duster' type cleaner will also work well for cleaning the component.

### Factory Service

Careful consideration has been given to the design of this product to keep maintenance problems to a minimum. If problems arise, refer to the trouble-shooting guide at the end of this manual. If the problem is not easily solved, we suggest that you contact our Customer Service Department by phone at (919) 355-0010, 1–5 pm Eastern Standard Time, to describe your problem in detail. Do not return the component to the factory without a Return Authorization Number **(RA)** from the Customer Service Department.

Cary Audio Design assumes no responsibility if the transportation company refuses to pay a damage claim due to your improper packing or lack of insurance should the unit be lost in shipment. We strongly suggest using the original packing cartons for shipping any Cary Audio Design component.

### Non-Warranty Repairs

Cary Audio Design will provide repair service for its products charging on a time and expense basis. At this time, the standard non warranty service bench fee is \$125 with all parts used for repair charged extra. This may change with time and is not a quote for service. Please call us at 919-355-0010 for more information about out of warranty service and repair fees.

#### **WARNING**

- **Make no attempt to put the PH 302 in service outside of the cabinet or with the cabinet open! Contact with the high voltages found inside the unit can be fatal!**

# LIMITED WARRANTY

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## **Cary Audio Warrants to the original United States purchaser for use in the United States the Following Cary Audio Products for the Periods Indicated:**

1. Power Amplifiers, Integrated Amplifiers, Surround Sound Processors, and Preamplifiers have a three (3) year parts and labor warranty from the date of the original purchase from Cary Audio.
2. CD or SACD players, DVD players, or Music Servers have an eighteen (18) month parts and labor warranty from the date of the original purchase from Cary Audio.
3. Vacuum tubes, if any are used in the component, are offered a 90-day exchange policy against defects with the exception of the CAVT 300B vacuum tube that has a one (1) year exchange policy from the date of the original purchase from Cary Audio.

## **What is Covered and What is Not Covered**

Except as specified below, this warranty covers parts and labor to correct all defects in materials and workmanship. The following are not covered by the warranty:

1. Damage, deterioration, malfunction or failure to meet performance specifications resulting from:
  - a. Accident, acts of nature, misuse, abuse, neglect or unauthorized product modifications
  - b. Improper installation, removal or maintenance, or failure to follow instructions supplied with the product.
  - c. Repair or attempted repair by anyone not authorized by Cary Audio to repair the product.
  - d. Any shipment of the product (claims must be presented to the carrier).
  - e. Any cause other than a product defect.
2. Cleaning, initial set-up, check-ups with no defects found, or charges incurred for installation, removal or reinstallation of the product.
3. Any product, on which the serial number has been defaced, modified or removed.
4. Batteries.
5. Accessories, including but not limited to, batteries, cables, mounting hardware and brackets, cleaning accessories, antenna and detachable power cords.
6. Warranty is void if purchase was made from anyone other than an authorized Cary Audio dealer.

## **Who May Enforce the Warranty?**

This warranty extends to products purchased directly from Cary Audio or an authorized Cary Audio dealer. Purchasers should inquire of the dealer regarding the nature and extent of the dealer's warranty, if any.

To obtain such warranty service, the original purchaser must complete and send in the Warranty Registration Card within 15 days of purchase.

# LIMITED WARRANTY

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## What Will We Pay For?

We will pay for all labor and material expenses for items covered by the warranty. Payment of shipping charges is discussed in the next section of this warranty.

## How You Can Get Service?

In the event that the owner needs to return the unit to Cary Audio for service or repair of a possible defect, he must follow the following steps:

1. Contact Cary Audio at 919-355-0010 to obtain a Return Merchandise Authorization (RMA) number prior to shipping; include this number with the package
2. Submit a copy of the original sales receipt; blank receipts will not validate the limited warranty for service by Cary Audio. The original sales receipt must contain the following information:
  - a. The authorized Cary Audio dealer's name
  - b. The date of purchase
  - c. The unit's sales price
  - d. The buyer's name and address
  - e. Describe in detail the problem.
  - f. Note the unit's model number and serial number.
3. Deliver by either of these methods:
  - a. With all freight and insurance charges prepaid and in its original packing container or equivalent, ship the component to Cary Audio, 1020 Goodworth Drive Apex, NC 27539.
  - b. Hand-deliver the product to Cary Audio (address noted above) or the nearest authorized service facility.

## Limitation of Implied Warranties

All implied warranties, including warranties of merchantability and fitness for particular purchase, are limited in duration to the length of this warranty.

## Exclusion of Damages

Cary Audio's liability for any defective product is limited to repair or replacement of the product at Cary Audio's option. Cary Audio shall not be liable for damage to other products caused by any defects in Cary Audio products, damages based upon inconvenience or loss of use of the product, or any other damages, whether incidental, consequential, or otherwise.

# LIMITED WARRANTY

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## **How State Law Relates to the Warranty**

Some states do not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

## **International Purchasers (Export Markets)**

Cary Audio warrants its merchandise to purchasers within the United States exclusively for use within the United States. It provides no other warranties, expressed or implied. If you are living outside of the United States, please consult your local dealer or distributor to determine the details of your local warranty.

CARY AUDIO DESIGN

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